REMARKS

By this amendment, the claims have been amended to correct the informalities which form the basis for the Examiner's rejection under 35 U.S.C. 112, 2nd paragraph.

The claims further stand rejected as obvious under 35 U.S.C. 103(a) over Duyvesteyn (239) in view of Winby H2005H. Duyvesteyn discloses a process for bioleaching metal-containing ore in which sulphur-containing compound is mixed with a sulphur selective microorganism to form a solution that is applied to metal containing ore in a leaching heap, along with water or a nutrient solution. Duyvesteyn discloses that the sulphur containing compound may be mixed with the microorganism ".. before, during, or after the microorganism contacts the ore .." column 2, lines 63-64.

The present invention is directed toward a two-step process wherein the microorganisms are first mixed with a sulphur-containing compound by preconditioning finely ground elemental sulphur particles with bacteria in a biological reactor for a sufficient time that the sulphur becomes wetted and that the bacteria attach themselves to the sulphur surfaces, producing acidic bioleach solutions, before adding the precondition sulphur particles to ore in a leaching heap.

Claim 1, upon which claims 2-13 depend, has been amended to include this language and newly added independent claim 14 contains that limitation including limitations that the bacteria include *Thiobacillus thiooxidans* and that preconditioning process lasts for at least 12 hours, and that the acidic bioleach solution produced during the preconditioning is added to the leaching heap to partially satisfy the acid demand of the ore.

None of these limitations directed to the preconditioning of the sulphur particles with bacteria before addition to a leaching heap containing the ore are disclosed or suggested in either Duyvesteyn or Winby. Duyvesteyn does not disclose or suggest that the sulphur particles become wetted and the bacteria attach themselves to the sulphur surfaces before addition to the leaching heap.

The specification of the present application distinguishes processes of the type disclosed by Duyvesteyn and Winby and points out the important commercial advantages of the present invention as defined in the claims. As set forth in the specification, the preconditioning process greatly speeds release of metal values from low sulphur content ores in the leaching heap. The curves of Figs. 2, 3 and 4 essentially compare results of the present process with prior art systems like the cited references and show the extremely important commercial advantages of the present invention.

Claim 2 adds the limitation to the process of claim 1 of adding *Thiobacillus ferrooxidans* to the leaching heap when the pH of the acidic bioleach solution at the bottom of the heap falls between 2.4. Certainly there is no disclosure or suggestion of that step in the cited references.

Claim 3 adds the limitation to claim 1 of producing the finely ground sulphur by rod milling. As the Examiner notes, the references do not disclose this limitation.

Claim 4 adds specific limitations to the definition of finely ground sulphur as produced by rod milling which are not disclosed in any of the cited references.

Claim 5 adds the limitation to the process of claim 1 of adding a bacteria nutrient to the finely ground sulphur particles during their preconditioning with bacteria. Since the cited references do not disclose any preconditioning process to wet the sulphur particles, allowing the bacteria to attach to the sulphur surfaces before adding the wetted sulphur particles to the leaching heap, claim 5 adds a further limitation which distinguishes the present invention from the cited art.

Claim 7 adds the limitation of the preconditioning of the finely ground sulphur particles with bacteria being conducted for 12-48 hours, clearly not disclosed or suggested by the cited references.

Claim 9 adds the limitation that acid bioleach solution produced during the preconditioning is added to a leach solution reservoir associated with the leaching heap to partially satisfy the acidic demand of the ore. Neither of the references disclose preconditioning sulphur particles with bacteria to produce an acid bioleach solution and accordingly this limitation clearly distinguishes the claimed invention from the cited references and emphasizes the extremely important commercial advantage of the method of the present invention.

Claim 10 further limits the method of claim 2 to the step of controlling the pH in the leaching heap in the range of 1.8 to 2.4 to speed the oxidization of metallic sulfites present in the ore, which is not disclosed in the cited references.

Claims 11-13 further limits the method of claim 1 with steps that are not disclosed in the cited references as noted above.

Newly added independent claim 14 emphasizes the two step nature of the present process wherein the elemental sulphur particles are preconditioned in a biological reactor for at least 12 hours to produce acidic bioleach solutions before agglomerating the preconditioned sulphur particles in the leaching heap and adding the acidic bioleach solution to the leaching heap to partially satisfy the acid demand of the ore. None of these limitations are disclosed in the cited references

It is therefore respectfully submitted that the claims, in their amended form, clearly distinguish from the cited references or any obvious combination of them, and reconsideration and allowance are accordingly respectfully solicited.

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